WE CLAIM:

1. A method of detecting a chemical agent, comprising exposing a sample to a fluorescent probe apparatus comprising at least one probe, wherein said at least one probe comprises a fluorophore in a polymer, said polymer selected from the group consisting of poly(isobutylene), 75%-phenyl-25%-methylpolysiloxane, poly(epichlorhydrin), poly(vinylpropionate), poly(trifluoropropyl)methylsiloxane, poly(4-vinylhexafluorocumyl alcohol), 1-(4-hydroxy, 4-trifluoromethyl, 5,5,5-trifluoro)pentene methylpolysiloxane, fluoropolyol, perfluorinated polyether with CF_2CH_2OH groups, poly(ethyleneimine), polybis(cyanopropyl)siloxane, poly(vinyltetradecanal) and alkylaminopyridyl-substituted siloxane and said fluorophore is selected from the group consisting of oxazine 720, 1,3-bis(4-(dimethylamino-2-hydroxyphenyl)-2,4-dihydroxycyclobutenediylium dihydroxide, bis(inner salt), diethylthiadicarbocyanine iodide, hexamethylindotricarbocyanine iodide, Indocyanine Green, New Indocyanine Green, diethylthiatricarbocyanine iodide, IR-780 perchlorate and hexamethylindodicarbocyanine, and determining a change of fluorescence resulting from exposure of said fluorophore to said chemical agent.

2. The method of claim 1, wherein said polymer is poly(ethyleneimine).

3. The method of claim 1, further comprising a solvent absorbed by said polymer.

4. The method of claim 3, wherein said solvent is ethanol.

5. The method of claim 2, further comprising a solvent absorbed by said polymer.

6. The method of claim 5, wherein said solvent is ethanol.

7. The method of claim 1, wherein said fluorophore is embedded in said polymer.

8. A method of detecting a chemical agent, comprising exposing a sample to a fluorescent probe apparatus comprising at least one probe, wherein said at least one probe comprises a fluorophore in a polymer, wherein said fluorophore is selected from the group consisting of Nile blue A perchlorate, Nile red,

oxazine 720, oxazine 750, 1,3-bis(4-(dimethylamino)-2-hydroxyphenyl)-2,4-dihydroxycyclobutenediylium dihydroxide, bis(inner salt), diethylthiadicarbocyanine iodide, hexamethylinotricarbocyanine iodide, Indocyanine Green, New Indocyanine Green, diethylthiatricarbocyanine iodide, IR-780 perchlorate, Methylene Blue and hexamethylindodicarbocyanine and said polymer is selected from the group consisting of poly(isobutylene), 75%-phenyl-25%-methylpolysiloxane, polybis(cyanopropyl)siloxane, poly(4-vinylhexafluorocumyl alcohol), 1-(4-hydroxy, 4-trifluoromethyl, 5,5,5,-trifluoro)pentene methylpolysiloxane, fluoropolyol, poly(vinyltetradecanal), poly(epichlorhydrin), poly(vinylpropionate), poly(trifluoropropyl) methylsiloxane, perfluorinated polyether with CF_2CH_2OH groups and alkylaminopyridyl-substituted siloxane, and determining a change of fluorescence resulting from exposure of said fluorophore to said chemical agent.

9. The method of claim 8, wherein the fluorophore is selected from the group consisting of oxazine 720, 1,3-bis(4-(diethylamino)-2-hydroxyphenyl)-2,4-dihydroxycyclobutenediylium dihydroxide, bis (inner salt), diethylthiadicarbocyanine iodide, hexamethylindotricarbocyanine iodide, Indocyanine Green, New

Indocyanine Green, diethylthiatricarbocyanine iodide, IR-780 perchlorate and hexamethylindodicarbocyanine.

10. The method of claim 9, further comprising a solvent absorbed by said polymer.

11. The method of claim 10, wherein said solvent is ethanol.

12. The method of claim 8, further comprising a solvent absorbed by said polymer.

13. The method of claim 12, wherein said solvent is ethanol.

14. The method of claim 8, wherein said polymer is fluoropolyol, poly(epichlorhydrin) or poly(4-vinylhexafluorocumyl alcohol) and said fluorophore is Nile red, Nile blue A perchlorate or hexamethylindodicarbocyanine.

15. The method of claim 1, comprising at least two probes wherein each of said two probes detects a different chemical agent.

16. The method of claim 8, comprising at least two probes wherein each of said two probes detects a different chemical agent.

17. The method of claim 8, wherein said polymer is fluoropolyol.

18. The method of claim 12, wherein said polymer is poly(epichlorhydrin) and said fluorophore is Nile blue A perchlorate.

19. The method of claim 13, wherein said polymer is poly(epichlorhydrin) and said fluorophore is Nile blue A perchlorate.

20. A method of detecting a chemical agent, comprising exposing a sample to a fluorescent probe apparatus comprising at least one probe, wherein said at least one probe comprises a fluorophore in a polymer, said fluorophore selected from the group consisting of Nile blue A perchlorate, Nile red, oxazine 720, oxazine 750, 1,3-bis(4-(dimethylamino)-2-hydroxyphenyl)-2,4-dihydroxycyclobutenediylium dihydroxide, bis(inner salt), diethylthiadicarbocyanine iodide, hexamethylindotricarbocyanine

iodide, Indocyanine Green, New Indocyanine Green, diethylthiatricarbocyanine iodide, IR-780 perchlorate, Methylene Blue and hexamethylindodicarbocyanine, and said polymer selected from the group consisting of poly(isobutylene), 75%-phenyl-25%-methylpolysiloxane, polybis(cyanopropyl)siloxane, poly(4-vinylhexafluorocumyl alcohol), 1-(4-hydroxy, 4-trifluromethyl, 5,5,5,-trifluoro) pentene methylpolysiloxane, poly(vinyltetradecanal), poly(epichlorhydrin), poly(vinylpropionate), poly(trifluoropropyl)methylsiloxane, fluoropolyol, perfluorinated polyether with CF_2CH_2OH groups and alkylaminopyridyl-substituted siloxane, and determining a change of fluorescence resulting from exposure of said fluorophore to said chemical agent.

21. The method of claim 20, wherein said fluorophore is embedded in said polymer.

22. The method of claim 20, wherein said polymer is fluoropolyol, poly(epichlorhydrin) or poly(4-vinylhexafluorocumyl alcohol) and said fluorophore is Nile red, Nile blue A perchlorate or hexamethylindodicarbocyanine.

23. The method of claim 20, further comprising a solvent absorbed by the polymer.

24. The method of claim 23, wherein the solvent is ethanol.

25. The method of claim 23, wherein said polymer is poly(epichlorhydrin) and said fluorophore is Nile blue A perchlorate.

26. The method of claim 24, wherein said polymer is poly(epichlorhydrin) and said fluorophore is Nile blue A perchlorate.

27. The method of claim 20, wherein the fluorophore is Nile blue A perchlorate.

28. The method of claim 20, wherein the fluorophore is selected from a group consisting of oxazine 720, 1,3-bis(4-(dimethylamino)-2-hydroxyphenyl)-2,4-dihydroxycyclobutenediylium dihydroxide, bis (inner salt), diethylthiadicarbocyanine iodide, hexamethylindotricarbocyanine iodide, Indocyanine Green, New

Indocyanine Green, diethylthiatricarbocyanine iodide, IR-780 Perchlorate, and hexamethylindodicarbocyanine.

29. The method of claim 28, further comprising a solvent absorbed by the polymer.

30. The method of claim 20, wherein said fluorescent probe apparatus comprises at least two probes wherein each probe is sensitive to a different chemical agent material.

31. The method of claim 20, wherein the polymer is fluoropolyol.

32. The method of claim 20, wherein the polymer is poly(epichlorohydrin).

33. The method of claim 20, wherein the polymer is poly(epichlorohydrin) and the fluorophore is Nile blue A perchlorate.

34. A method of detecting a chemical agent, comprising exposing a sample to a fluorescent probe apparatus comprising at least one probe, wherein said at least one probe comprises a

fluorophore in poly(ethylene maleate), wherein said fluorophore is selected from the gorup consisting of oxazine 720, 1,3-bis(4-(dimethylamino)-2-hydroxyphenyl)-2,4-dihydroxycyclobutenediylium dihydroxide, bis(inner salt), diethylthiadicarbocyanine iodide, hexamethylindotricarbocyanine iodide, Indocyanine Green, New Indocyanine Green, and IR-780 perchlorate, and determining a change of fluorescence resulting from exposure of said fluorophore to said chemical agent.

35. The method of claim 34, wherein said fluorophore is embedded in said poly(ethylene maleate).